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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/526,009	02/25/2005	Akiyoshi Fujii	1248-0772PUS1	4652

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EXAMINER	
HAFIZ, MURSALIN B	
ART UNIT	PAPER NUMBER
2814	

SHORTENED STATUTORY PERIOD OF RESPONSE	NOTIFICATION DATE	DELIVERY MODE
3 MONTHS	02/01/2007	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Notice of this Office communication was sent electronically on the above-indicated "Notification Date" and has a shortened statutory period for reply of 3 MONTHS from 02/01/2007.

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mailroom@bskb.com

Office Action Summary	Application No.	Applicant(s)	
	10/526,009	FUJII ET AL.	
	Examiner	Art Unit	
	Mursalin B. Hafiz	2814	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 November 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-35* is/are pending in the application.

4a) Of the above claim(s) *7,8,11-25 and 30-33* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6,9,10,26-29,34 and 35* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *2/25/05, 4/18/05*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of claims 1-6, 9, 10, 26-29, 34 and 35 in the reply filed on November 13, 2006 is acknowledged.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 1 recites the limitation "the processed semiconductor layer" in line 6. There is insufficient antecedent basis for this limitation in the claim. For this office action it is assumed "the processed semiconductor layer" is "a semiconductor layer".

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claim1-6, 9, 10, 26, 29, 34 and 35 are rejected under under 35 U.S.C. 103(a) as obvious over Kido (US 2002/0119586 A1) in view of Sturm et al (US 6,087,196).

Regarding claim 1, Kido disclosed in Fig. 9B and 9C, a TFT array [paragraph 0002; Fig. 5B] substrate comprising: a thin film transistor section in which a gate electrode [102] is formed on a substrate [101], and a semiconductor layer [164] is

formed on the gate electrode [102] via a gate insulation layer [103] and the semiconductor layer is formed as island.

As taught by Kido does not disclose semiconductor layer formed by dropping a droplet. However, Sturm et al teaches an analogous device in fig. 14B and method of making the device, wherein a semiconductor layer [122] having a shape formed by dropping a droplet using ink-jet printing. It would have been obvious to one of ordinary skilled in the art at the time of the invention was made to incorporate Sturm et al's teaching into Kido's device at least to deposit material easily which gives the flexibility to extend over large areas [column 1 lines 50-60; column 2 lines 30-33].

The limitation "the processed semiconductor layer having a shape fromed by dropping a droplet" is drawn to a process by which the product is made. Note that a "product by process" claim is directed to the product per se, no matter how actually made, *In re Hirao*, 190 USPQ 15 at 17 (footnote 3). See also *In re Brown*, 173 USPQ 685; *In re Luck*, 177 USPQ 523; *In re Fessmann*, 180 USPQ 324; *In re Avery*, 186 USPQ 161; *In re Marosi et al.*, 218 USPQ 289; and particularly *In re Thorpe*, 227 USPQ 964 (CAFC, 1985), all of which make it clear that it is the patentability of the final product per se which must be determined in a "product by process" claim, and not the patentability of the process, and that an old or obvious product produced by a new method is not patentable as a product, whether claimed in "product by process" claims or not. Note that applicant has the burden of proof in such cases, as the above case law makes clear. **Note that applicant has burden of proof in such cases,** as the above case law makes clear.

Regarding claim 2, Kido disclosed in Fig. 9B and 9C, the gate electrode [102] in the thin film transistor section is a branch electrode which is branched out of a main gate of the gate electrode, and the branch electrode has an open end protruded from an area for the semiconductor layer.

Regarding claim 3, "a portion protruded from area for the semiconductor layer is smaller in width than a portion confined within the area for the semiconductor layer" is non-critical matter. The shape would have been obvious to an ordinary skilled in the art because, absent evidence of disclosure of criticality for the shape giving unexpected results, it is not inventive to discover optimal or workable shape by routine experimentation. *In re Daily* 149 USPQ 47, 50 (CCPA 1966). See also *Glue Co. v. Upton* 97 US 3, 24 (USSC 1878); *In re Rose*, 105 USPQ 237 (CCPA 1995).

Regarding claim 4, Kido disclosed in Fig. 9B and 9C, the thin film transistor section further includes a source electrode [136] and a drain electrode [106] on the semiconductor layer [164], and a channel section is formed between the source and drain electrodes, and the portion of the branch electrode protruded [136 protruded to the data line] from the area for the semiconductor layer is formed in contact with one of the source and drain electrode.

Regarding claims 5 and 6, Kido disclosed in Fig. 9B and 9C, the thin film transistor section further includes a source electrode and a drain electrode on the semiconductor layer, and a channel section is formed between the source and drain electrodes.

The limitation "the portion of the branch electrode protruded from the area for the semiconductor layer is formed according to the following formula...variation of dropping amount of the droplet for forming the semiconductor layer and variation of spread of the droplet after dropping..." is drawn to a process by which the product is made. Note that a "product by process" claim is directed to the product per se, no matter how actually made, *In re Hirao*, 190 USPQ 15 at 17 (footnote 3). See also *In re Brown*, 173 USPQ 685; *In re Luck*, 177 USPQ 523; *In re Fessmann*, 180 USPQ 324; *In re Avery*, 186 USPQ 161; *In re Marosi et al.*, 218 USPQ 289; and particularly *In re Thorpe*, 227 USPQ 964 (CAFC, 1985), all of which make it clear that it is the patentability of the final product per se which must be determined in a "product by process" claim, and not the patentability of the process, and that an old or obvious product produced by a new method is not patentable as a product, whether claimed in "product by process" claims or not. Note that applicant has the burden of proof in such cases, as the above case law makes clear. **Note that applicant has burden of proof in such cases,** as the above case law makes clear.

Regarding claim 9, Kido disclosed in Fig. 9B and 9C, the thin film transistor includes a source electrode and a drain electrode on the semiconductor layer, and a channel section is formed between the source and drain electrodes.

The limitation "the semiconductor layer is formed according to the following formula...variation of dropping amount of the droplet for forming the semiconductor layer and variation of spread of the droplet after dropping..." is drawn to a process by which the product is made. Note that a "product by process" claim is directed to the

product per se, no matter how actually made, *In re Hirao*, 190 USPQ 15 at 17 (footnote 3). See also *In re Brown*, 173 USPQ 685; *In re Luck*, 177 USPQ 523; *In re Fessmann*, 180 USPQ 324; *In re Avery*, 186 USPQ 161; *In re Marosi et al.*, 218 USPQ 289; and particularly *In re Thorpe*, 227 USPQ 964 (CAFC, 1985), all of which make it clear that it is the patentability of the final product per se which must be determined in a "product by process" claim, and not the patentability of the process, and that an old or obvious product produced by a new method is not patentable as a product, whether claimed in "product by process" claims or not. Note that applicant has the burden of proof in such cases, as the above case law makes clear. **Note that applicant has burden of proof in such cases** as the above case law makes clear.

Regarding claim 10, Kido disclosed a liquid crystal display device [paragraph 0002].

Regarding claim 26, Kido disclosed in Fig. 9B and 9C, a thin film transistor section in which a gate electrode [102] is formed on a substrate and a semiconductor layer [164] and a conductor layer [105, 135] are formed on the gate electrode via a gate insulation layer, wherein: the conductor layer is formed in contact with the semiconductor layer and one of source and drain electrodes of the thin film transistor section, and the conductor layer and the semiconductor layer having the same shape.

As taught by Kido the semiconductor layer (island) can be considered having a shape formed by dropping a droplet. However, if the island is not considered shape formed by dropping a droplet Sturm et al teaches an analogous device in fig. 14B, wherein a semiconductor layer [122] having a shape formed by dropping a droplet. It

would have been obvious to one of ordinary skilled in the art at the time of the invention was made to incorporate Sturm et al's teaching into Kido's device at least to deposit organic material easily which gives the flexibility to extend over large areas [column 1 lines 50-60].

The limitation "formed by dropping a droplet" is drawn to a process by which the product is made. Note that a "product by process" claim is directed to the product per se, no matter how actually made, *In re Hirao*, 190 USPQ 15 at 17 (footnote 3). See also *In re Brown*, 173 USPQ 685; *In re Luck*, 177 USPQ 523; *In re Fessmann*, 180 USPQ 324; *In re Avery*, 186 USPQ 161; *In re Marosi et al.*, 218 USPQ 289; and particularly *In re Thorpe*, 227 USPQ 964 (CAFC, 1985), all of which make it clear that it is the patentability of the final product per se which must be determined in a "product by process" claim, and not the patentability of the process, and that an old or obvious product produced by a new method is not patentable as a product, whether claimed in "product by process" claims or not. Note that applicant has the burden of proof in such cases, as the above case law makes clear. **Note that applicant has burden of proof in such cases,** as the above case law makes clear.

4. Claim 27 and 28 are rejected under 35 U.S.C. 103(a) as obvious over Kido (US 2002/0119586 A1) and Sturm et al (US 6,087,196) in view of Miyazaki et al (US 6,608,353 B2).

Regarding claim 27 and 28, Kido fails to disclose conductor layr is constituted of Mo, W, Ag, Cr, Ta, Ti, a metal material mainly containing one of Mo, W, Ag, Cr, Ta, Ti,

or an indium tin oxide and the source and drain electrodes are made of an Al or a metal material mainly containing Al. However, Miyazaki et al discloses in column 2 lines 25-35, that these materials. Therefore, it would have been obvious to one of ordinary skilled in the art at the time the invention was made to select these materials as known materials, as taught by Miyazaki et al into the device of Kido at least to reduce the thickness of the semiconductor layer. Moreover, selection of a known material based on its suitability for its intended use supported a prima facie obviousness determination in *Sinclair & Carroll Co., Inc. v. Interchemical Corp.,* 325 U. S. 327,65 USPQ 297 (1945).

Regarding claim 29, Kido disclosed a liquid crystal display device [paragraph 0002].

Regarding claims 34 and 35, Kido disclosed an electronic device [paragraph 0002].

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mursalin B. Hafiz whose telephone number is 571-272-8604. The examiner can normally be reached on m-f 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy can be reached on 571-272-1705. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Mbh

WAI-SING LOUIE
PRIMARY PATENT EXAMINER